

# CONSEQUENCES OF NUCLEAR TESTING IN THE MARSHALL ISLANDS

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# HEALTH PHYSICS

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*On the cover:* A reproduction of a classic photograph printed in newspapers around the world from the second nuclear test at Bikini Atoll in July 1946. There were about 42,000 observers of the test including 40,000 U.S. servicemen. Photograph courtesy of the National Archives.

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## EDITORS' REMARKS

It is with great pleasure that we, along with Editor-in-Chief Ken Miller and the Health Physics editorial staff, bring you this special issue, *Consequences of Nuclear Testing in the Marshall Islands*. Many readers undoubtedly are thinking: Why report on the Marshall Islands now? There are several answers to that question, but certainly an important one is that the issues of radiation protection made necessary by the nuclear testing program, are still relevant today, and the assessments of health, social and ecological impacts, are still going on. Furthermore, radiation protection issues in the Marshall Islands have similarity to issues in other countries that have experienced similar events.

The genesis of this issue was in 1993 at the mid-year Health Physics Society meeting in Coeur d'Alene, ID. We began a dialogue then to discuss the possibility and the relevance of an issue devoted entirely to the Marshall Islands. It was particularly fitting at that time to plan for such a publication since two commemorative dates were approaching: (1) 1994 would mark 40 years since the infamous BRAVO test that seriously exposed Marshallese on Rongelap and neighboring atolls, and (2) 1995 would mark 50 years that the Bikini people had been gone from their traditional home, originally displaced by the nuclear testing program. Though it was not possible to publish the issue in 1994 or 1995, this issue serves to commemorate those events.

We agreed that the papers presented here needed to be scientifically based but we felt that it was also important to go beyond the hard facts of radioactivity measurements and dose assessments to provide some information on the impact that nuclear weapons testing had on the culture and society of the island country as well as the context of the events in the history of the time. Thus, you will observe a slight departure from the usual content of this Journal though all papers have undergone the customary level of anonymous peer review.

The papers presented here were authored by scientists ranging in age from those well into mature careers at the time of nuclear testing program to those who were just youngsters, too young to understand the events taking place. It is impressive just how many scientists over the decades have applied themselves to studying and solving the problems brought about by nuclear testing in the Marshall Islands, and a cross-section of those are represented by the authors of these papers.

The response of the scientific community to a formal Call-For-Papers was enthusiastic; consequently, this issue is one of the largest ever published by *Health Physics*. The papers have been arranged into what we feel to be a logical sequence: (a) History, (b) Radiolog-

ical Monitoring, (c) Dose Assessment, (d) Health Effects, (5) Environmental Studies, and (6) Additional Papers. The only topic that seemed essential for completeness but that could not be included was a description of the programs and the criteria for the radiological cleanup of Enewetak Atoll which took place from 1978 to 1980.

We are indebted to the authors, reviewers, editors and our publisher for the efforts they extended to assist in producing this special issue. In particular, we would like to acknowledge the financial support of this publication by the Office of International Health Programs of the U.S. Department of Energy. Publication cost for authors working within DOE supported programs as well as for independent authors without institutional affiliation or provisions was supported. We sincerely appreciate the assistance of the Department of Energy for making this issue possible.

We, as well as many other scientists, believe that it is worthwhile and imperative to publish these papers today. Other countries on several different continents are grappling with the same issues as in the Marshall Islands: environmental damages, health consequences, societal fear of radiation and cancer and financial issues, including costs of remediation, community rebuilding and compensation. Thus, information from the Marshall Islands should be useful in a global sense, and that fact increases the value of the information presented here.

Finally, we should all be aware of a problem that is rather difficult for us to accept: that the zealotry with which the scientific community approaches studies of radiation effects sometimes leads to a misunderstanding by those who have been exposed or believe themselves to have been exposed. The opportunity to learn from our mistakes is invaluable, but the tendency of scientists to poke and prod and sample *ad infinitum* can sometimes be misunderstood as evidence of having purposefully created the injury. We understand that the opportunity to conduct research that may be of far-reaching value has no relation to the circumstances that led to the injury. This conclusion was reached by President Clinton's investigative panel on Human Radiation Experiments in relation to the Marshall Islands exposures. As specialists in radiation protection, we owe our attention and our best efforts to the Marshallese, and in that spirit we present this issue on *Consequences of Nuclear Testing in the Marshall Islands*.

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